

Formative Assessment: A Process for Improving Teaching and Learning

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The efforts of state education agencies and local school districts to ensure that all students meet academic proficiency goals and all schools make adequate yearly progress in closing the achievement gap have led to an increased focus on “formative assessment.” Formative assessment has recently emerged as one of the more promising strategies for improving student learning. Journalistic coverage of education is filled with references to it. Testing companies are developing and marketing interim or benchmark testing systems, claiming these are formative assessments that will boost student achievement. “Formative assessment” is showing up in more and more school and district improvement plans.

Yet this increased attention to formative assessment has also produced disagreement, even confusion, about what formative assessment is and what it can do. Thoughtful observers of trends in educational programs and instructional strategies are looking for clarification. What is formative assessment? How does it work? What evidence is there that it facilitates learning? How are local school districts building the capacity of schools to implement formative assessments? What should state education agencies be doing to support local efforts?

During the spring of 2008, professionals from the New York State Education Department (SED) met with staff from the New York Comprehensive Center (NYCC) and the Assessment and Accountability Content Center (AACC) on three occasions to begin building a shared understanding within SED of formative assessment and its potential benefits and to enhance the knowledge of SED staff and its ability to make decisions related to formative assessment. To this end, the NYCC and AACC engaged national experts on formative assessment to discuss how formative assessment can be used as a strategy to attain the Regents’ goals of closing the achievement gap, raising achievement for all students, and increasing graduation rates.

In this paper we briefly summarize the nature and benefits of formative assessment as described in those three meetings. We also summarize information we presented on how other states are approaching formative assessment and how a collaboration among SED, NYCC, and AACC has been working with the Syracuse City School District (SCSD) to bring formative assessment practices to mathematics instruction. Finally, we present several approaches discussed during these meetings through which SED staff may continue improving its knowledge of formative assessment and support New York school systems in adopting formative assessment practices.

What is formative assessment?

Of the different assessments educators use, formative assessment is perhaps the most commonly misunderstood. Many conceive formative assessment to be periodic tests, sometimes

given as occasionally as twice a year, sometimes given as regularly as once a week. However, the formative assessment that research supports as having the power to improve student learning dramatically is not about another test—no matter how regular—but rather a shift in classroom teaching and student learning. Formative assessment is not about testing at all. It is, rather, a research-based instructional process teachers use to increase student performance.

In 2006, the Council of Chief State School Officers (CCSSO) created the Formative Assessment Study Team (FAST). Its initial assignment was to clarify the meaning of formative assessment and to determine how it could best be used by the nation's educators. The team came up with the following definition:

Formative assessment is a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes.¹

In other words, formative assessment is a process, not an event, that is embedded in instruction to redirect teaching and learning in ways that help students master learning goals. The CCSSO elaborated on this definition:

The primary purpose of the formative assessment process, as conceived in this definition, is to provide evidence that is used by teachers and students to inform instruction and learning during the teaching/learning process. Effective formative assessment involves collecting evidence about how student learning is progressing during the course of instruction so that necessary instructional adjustments can be made to close the gap between students' current understanding and the desired goals. Formative assessment is not an adjunct to teaching but, rather, integrated into instruction and learning with teachers and students receiving frequent feedback.

One key feature of this definition is its requirement that formative assessment be regarded as *a process* rather than a particular kind of assessment. In other words, there is no such thing as "a formative test." Instead, there are a number of formative assessment strategies that can be implemented during classroom instruction. These range from informal observations and conversations to purposefully planned instructionally embedded techniques designed to elicit evidence of student learning to inform and adjust instruction.

A second important part of the definition is its unequivocal requirement that the formative assessment process involve both teachers *and* students. The students must be actively involved in the systematic process intended to improve their learning. The process requires the teacher to share learning goals with students and provide opportunities for students to monitor their ongoing progress.²

How does formative assessment work?

Different authors provide superficially different, but essentially similar descriptions of

how formative assessment works. For example, the CCSSO FAST describes five attributes of successful formative assessment:

- Learning progressions should clearly articulate the sub-goals of the ultimate learning goal.
- Learning goals and criteria for success should be clearly identified and communicated to students.
- Students should be provided with evidence-based feedback that is linked to the intended instructional outcomes and criteria for success.
- Both self- and peer-assessment are important for providing students an opportunity to think meta-cognitively about their learning.
- A classroom culture in which teachers and students are partners in learning should be established.³

Margaret Heritage of the AACC, a published national expert on formative assessment and data use, who is working with New York on formative assessment, identifies four core elements of formative assessment:

- Learning progressions that help teachers locate students' current learning status on the continuum along which students are expected to progress;
- Setting learning goals for students that are attainable from their current status in learning (i.e., identifying the "just right" gap);
- Feedback that provides students clear, descriptive, criterion-based information indicating where they are in a learning progression, how their understanding differs from the desired learning goal, and how they can move forward; and,
- Student involvement through self- and peer-assessment and collaboration with the teacher in determining their current learning status and what they need to do to move forward in their learning.^{4 5}

Last, Leahy, Lyon, and Wiliam have found five broad strategies powerful for teachers of all content areas and at all grade levels:

- Clarifying and sharing learning intentions and criteria for success;
- Engineering effective classroom discussions, questions, and learning tasks;
- Providing feedback that moves learners forward;
- Activating students as the owners of their own learning; and
- Activating students as instructional resources for one another.⁶

In addition to discussing components of formative assessment, the SED group analyzed videos that illustrate the practice of formative assessment in the classroom (e.g., videos 565 and 566 at www.teachers.tv). They also consulted a paper containing vignettes of formative assessment in practice published by CCSSO.⁷ These vignettes, based on observations of teachers across the U.S., illustrate formative assessment practice across a range of grade levels and content areas.

What is the evidence that formative assessment facilitates learning?

In a 1998 meta-analysis of 250 studies involving formative assessment, Black and Wiliam found that improving classroom formative assessment practices produced larger effects than are usually found for educational interventions. Moreover, they found that formative assessment benefits spanned students from kindergarten to post-secondary.⁸ Since that pivotal study, new findings have confirmed and expanded on the benefits of formative assessment. In 2004, Wiliam and others reported that teachers' improving their formative assessment practices has produced student gains on externally mandated standardized tests, not just school and classroom specific tests.⁹ In 2006, Wiliam reported that providing teachers the support to implement classroom formative assessment rapidly closed achievement gaps, with students learning in six months what would have taken a year in other classrooms.¹⁰

Research also indicates that formative assessment creates value beyond improved student academic achievement. Black and others reported in 2003 that formative assessment can promote significant gains in student motivation and self-efficacy (predictors of high school graduation) as well as teacher self-efficacy, satisfaction, and professional competence.¹¹ Finally, in 2007 Wiliam argued that formative assessment is more cost-effective than other school improvement initiatives, in fact, 20 to 30 times more-cost effective than reducing class size.¹²

What are other states doing to explore or support formative assessment?

Some states are providing guidance, incentives, and leadership to enable teachers to use formative assessment to maximize student learning. Pennsylvania, for example, has endorsed the CCSSO definition of formative assessment and recently sponsored a statewide conference on formative assessment for schools, districts, and intermediate education service units. The state is also including formative assessment in its training for distinguished educators and intermediate agencies. More about Pennsylvania's stance on formative assessment may be found at <http://www.portal.state.pa.us/portal/server.pt?open=512&objID=4228&&PageID=440536&mode=2>. Other state efforts to support formative assessment were highlighted at the April 2008 American Educational Research Association Annual Meeting:

Creating a Map: An Examination of the State Role in Developing A Vision of Formative Assessment analyzes a southern state's efforts to develop a state-level policy on formative assessment. The lessons from this work suggest that developing a consensus about the nature of formative assessment takes time.¹³

Charting Their Own Course: An Examination of the State Role in Building Capacity for Formative Assessment is a study of a ten-state collaborative pilot program to build assessment literacy among high school teachers. State leadership teams took a proactive and sustained approach to building local-level capacity.¹⁴ Iowa, for example, has embraced the CCSSO definition and made resources available online at <http://www.iowa.gov/educate/content/view/1072/1171/>.

Growing Beyond a Pilot: An Examination of the State Role in Sustaining Growth Beyond a Successful Pilot analyzes Vermont's efforts to train professionals in the state's vision of formative assessment using a particular professional development program. The paper also investigates how the state addressed scalability and fidelity after the first pilot year.¹⁵ An overview of Vermont's work to date is available at http://www.education.vermont.gov/new/pdfdoc/pgm_assessment/fapp/overview.pdf.

These descriptions suggest that other states are committing to the support of formative assessment as an effective strategy for improving teaching and learning.

How has the collaboration among AACC, NYCC, and SED already supported capacity to implement formative assessment in one large urban district?

The collaboration is supporting implementation of formative assessment in elementary mathematics classrooms in Syracuse. The three meetings in the Spring of 2008 included presentations by AACC, NYCC, and Syracuse personnel on this work. In the project's first year, NYCC worked intensively with Syracuse math coaches serving 4th and 5th grade teachers in ten elementary schools, and to a lesser degree with principals, to build conceptual knowledge of formative assessment. In addition, NYCC worked with a steering group of district administrators to help them develop and articulate a consistent vision of formative assessment in the district and formative assessment's role within a comprehensive local assessment system.

Preliminary evidence on the impact of the Syracuse work is promising. Survey data show local and state stakeholders in the Syracuse project have shifted their understanding of formative assessment from quarterly benchmark tests to the instructionally embedded process articulated by the CCSSO.¹⁶ Moreover, local and state stakeholders reported that their knowledge of instructional strategies aligned with formative assessment increased. Only 48% of participants said they were moderately or very knowledgeable before receiving technical assistance from the collaborative, but 96% reported being moderately or very knowledgeable afterward.¹⁷ The evaluation of Syracuse's *Title II B* grant for math and science professional development, of which the formative assessment project is a major component, reports that changes in classroom practice have begun to emerge. More specifically,

“Observations of mathematics classrooms indicated that teachers are altering their instructional practices and are moving new skills into their classrooms.”

“Use of a turnkey approach to formative assessment training was validated via teacher self report, evaluator classroom observations, and student work. Teachers reported that they use formative assessment tools to differentiate instruction in their classrooms and to provide immediate feedback to their students on a daily basis. A review of student folders supported teachers' uses of formative assessment strategies in their work with students.”¹⁸

Results from this first year of implementation, however, should be interpreted with cautious optimism. Survey data collected by the AACC show that, at end of the 2008 school year, many questions remained among teachers about what formative assessment is and how to use it. Though there were gains in knowledge, use of the innovation is not yet widespread.¹⁹

Work continues into the second year with support for the math coaches to work directly with classroom teachers. NYCC's primary client, however, is SED, and the project's primary mission is to build SED capacity to support other school districts in implementing formative assessment.

How can SED support formative assessment?

At the end of the third SED group meeting, participants agreed that SED should move forward with several practices that SED customarily adopts when supporting a new initiative, such as:

- Informing the field about what formative assessment looks like in the classroom and offering models and guidance for districts;
- connecting formative assessment to initiatives across the field and within SED, such as including higher education in developing policy on formative assessment;
- refining and carrying out a plan for measuring the impact of the Syracuse project; and
- incorporating formative assessment into SED's internal standards review process.

The three SED formative assessment meetings achieved their goal of sharing knowledge and information so that the department can make more informed decisions about formative assessment as a potential educational strategy for closing the achievement gap. Staff who attended the meetings came from multiple offices and multiple levels within SED. Participants reported that they are very interested in moving forward with formative assessment work within the department.

¹ Council of Chief State School Officers. (2008). *Attributes of effective formative assessment*. Washington, DC: Author, p. 3. Accessible online at <http://www.ccsso.org/publications/details.cfm?PublicationID=362>.

² Ibid.

³ Ibid, pp. 4-5.

⁴ Heritage, M. (2007). Formative assessment: What do teachers need to know and do? *Phi Delta Kappan*, 89(2), 140-145.

⁵ For more information about learning progressions, see also Heritage, M. (2008). *Learning progressions: Supporting instruction and formative assessment*. Washington DC: Council of Chief State School Officers.

⁶ Leahy, S., Lyon, C., Thompson, M., & Wiliam, D. (2005). Classroom assessment: Minute by minute, day by day. *Educational Leadership*, 63(3), 19-24.

⁷ Council of Chief State School Officers. (2008). *Formative assessment: Examples of practice*. Washington, DC: Author.

⁸ Black, P., & Wiliam, D. (1998). Inside the black box: Raising standards through classroom assessment. *Phi Delta Kappan*, 80(2), 139-148.

⁹ Wiliam, D., Lee, C., Harrison, C., & Black, P. (2004). Teachers developing assessment for learning: Impact on student achievement. *Assessment in Education: Principles, Policy & Practice*, 11(1), 49-65.

¹⁰ Wiliam, D. (2006). Does assessment hinder learning? Speech delivered at the ETS Europe Breakfast Salon. Accessible online at http://www.mission-21.com/ec/images/williams_speech.pdf. For additional evidence, see also Bloom, B. (1984). The search for methods of group instruction as effective as one-to-one tutoring. *Educational Leadership*, 41(8), 4-17; Guskey, T. R. (2005). Formative classroom assessment and Benjamin S. Bloom: Theory, research, and implications. Paper presented at the Annual Meeting of the American Educational Research Association in Montreal, Canada; National Council of Teachers of Mathematics. (2007). *What does research say the benefits of formative assessment are?* Reston, VA: Author. Accessible online at http://www.nctm.org/uploadedFiles/Research_Issues_and_News/Briefs_and_Clips/brief_form_assessment.pdf; and Organization for Economic Cooperation and Development. (2005). *Formative assessment: Improving*

learning in secondary classrooms. Author. Accessible online at

<http://books.google.com/books?id=w3CnMyjYyb0C>.

- ¹¹ Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2003). *Assessment for learning: Putting it into practice*. New York: Open University Press.
- ¹² Wiliam, op. cit., p. 4.
- ¹³ Bell, C., Tocci, C., & Wylie, C. (2008). *Creating a map: An examination of the state role in developing a vision of formative assessment*. Paper presented at the American Educational Research Association Annual Meeting in New York, NY.
- ¹⁴ Weinbaum, E.H. (2008). *Charting their own course: An examination of the state role in building capacity for formative assessment*. Paper presented at the American Educational Research Association Annual Meeting in New York, NY.
- ¹⁵ Taylor, G. & Wylde, G. (2008). *Growing beyond a pilot: An examination of the state role in sustaining growth beyond a successful pilot*. Paper presented at the American Educational Research Association Annual Meeting in New York, NY.
- ¹⁶ Frankel, S. L., & Apley, A. (2008). *New York Comprehensive Center internal evaluation report – year 3 – July 1, 2007 to June 30, 2008*. Portsmouth, NH: RMC Research Corporation, p. 17.
- ¹⁷ Ibid.
- ¹⁸ Newman, D.L., & Gullie, K. (2008). *Syracuse city school district Title II B mathematics and science partnership: mathematics project year one report 2007 -2008*. Albany, NY: State University of New York, University at Albany, The Evaluation Consortium, p. 12.
- ¹⁹ Assessment and Accountability Comprehensive Center. (2008). Preliminary results from the Stages of Concern Questionnaire: New York Formative Assessment Study (Draft). San Francisco, CA: WestEd.